

Claims

- 5 1. Active substance-doped water-absorbing polymer particles, comprising:
- Φ1. as active substance a care substance or a wound-treating substance in a
 quantity in the range from 0.001 to 30 wt.%, based on the active
 substance-doped water-absorbing polymer particles,
- Φ 2. an absorber matrix in a quantity in the range from 70 to 99.999 wt.%,
10 based on the active substance-doped water-absorbing polymer particles,
- wherein the absorber matrix comprises, to at least 90 wt.%, based on the absorber
matrix, a cross-linked polyacrylic acid,
- wherein the cross-linked polyacrylic acid comprises, to at least 90 wt.%, based on
the cross-linked polyacrylic acid, an acrylic acid which is partially neutralised to at least 30
15 mol%.
2. Active substance-doped water-absorbing polymer particle according to claim
1, wherein the active substance is distributed over the entire absorber matrix.
- 20 3. Active substance-doped water-absorbing polymer particle according to any
one of the preceding claims, wherein this has a residual monomer content of the monomer
on which the water-absorbing polymer particle is based under 500 ppm.
4. Active substance-doped water-absorbing polymer particle according to any
25 one of the preceding claims, wherein this has an active substance availability of at least 40
wt.% according to the Extraction Test described herein.

5. Water-absorbing composition, comprising:

Γ1. a polycondensate matrix, based on at least one polycondensate monomer with at least one polycondensate group, and

5 Γ2. a particulate water-absorbing polymer, comprising an active substance, preferably a wound treatment substance, or a care substance, or salt thereof, with at least one functional group which can react with the polycondensate group to form a covalent link, or an active substance-doped polymer particle defined in any one of claims 1 to 4,

10 wherein the particulate water-absorbing polymer is at least partially surrounded by the polycondensate matrix,

wherein at least the particulate water-absorbing polymer comprises the active substance, and

wherein the water-absorbing composition has an active substance availability of at least 10 wt.% according to the Extraction Test described herein.

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6. Process for producing a water-absorbing composition, wherein a particulate water-absorbing polymer comprising an active substance, preferably a wound treating substance or a care substance, is at least partially incorporated into a condensate matrix based on at least one polycondensate monomer, wherein the particulate water-absorbing polymer comprising the active substance or an active substance-doped water-absorbing polymer particle defined in any one of claims 1 to 4 is contacted with the polycondensate monomer before the end of the polycondensate matrix formation.

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7. Water absorbent composition, obtainable by a process according to claim 6.

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8. Composition according to claim 5 or 7, wherein the water-absorbing polymer has at least one of the following properties:

- 5 A1) a particle size distribution, whereby at least 80 wt.% of the particles have a particle size in a range from 20 μm to 900 μm according to ERT 420.1-99;
- A2) a Centrifuge Retention Capacity (CRC) of at least 10 g/g, preferably at least 20 g/g according to ERT 441.1-99;
- 10 A3) an Absorption Against Pressure (AAP) at 0.7 psi of at least 4 g/g according to ERT 442.1-99;
- A4) a water soluble polymer content after 16 hours extraction of less than 25 wt.%, respectively based on the total weight of the water-absorbing polymer, according to ERT 470.1-99;
- 15 A5) a residual moisture of at most 15 wt.%, respectively based on the total weight of the water-absorbing polymer, according to ERT 430.1-99.

9. Composition according to any one of claims 5, 7 or 8, wherein the water-absorbing polymer is based on:

- 20 ($\alpha 1$) 0.1 to 99.999 wt.% polymerised, ethylenically unsaturated, acidic group-containing monomers or salts thereof or polymerised, ethylenically unsaturated monomers comprising a protonated or quaternated nitrogen, or mixtures thereof,
- ($\alpha 2$) 0 to 70 wt.% polymerised, ethylenically unsaturated monomers copolymerisable with ($\alpha 1$),
- 25 ($\alpha 3$) 0.001 to 10 wt.% of one or more crosslinkers,
- ($\alpha 4$) 0 to 30 wt.%, preferably 1 to 20 wt.% water soluble polymers, as well as

($\alpha 5$) 0 to 20 wt.% of one or more auxiliaries,

wherein the sum of the weight quantities ($\alpha 1$) to ($\alpha 5$) amounts to 100 wt.%.

10. Composition according to any one of claims 5, 7 to 9, wherein the
5 polycondensate matrix comprises at least 10 wt.%, based on the polycondensate matrix, a polyurethane.

11. Composition according to any one of claims 5, 7 to 10, wherein the polycondensate matrix is present as a foam.

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12. Composite comprising a composition according to one of claims 5, 7 to 11.

13. Composite according to claim 12, with at least one of the following properties:

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V1) a viscose elasticity [$\tan \delta$ ($\omega = 0.3$ rad/s)] in the range from 0.1 to 10;

V2) a liquid absorption [$\text{g}/100 \text{ cm}^2$] of at least 5;

V3) a water vapour permeability [$\text{g}/(\text{m}^2 \times 24 \text{ h})$] of at least 100; or

V4) an O_2 permeability [$\text{cm}^3/(\text{m}^2 \times 24 \text{ h})$] of at least 100.

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14. Composite according to claim 12 or 13, comprising additionally, besides the composition according to any one of claims 5, 7 to 11, a film.

15. Composite according to claim 14, wherein the film has a water vapour permeability [$\text{g}/(\text{m}^2 \times 24 \text{ h})$] in the range from 100 to 2000.

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16. Composite according to claim 14 or 15, wherein the composition is directly adjacent to the sheet.

17. Hygiene article comprising an active substance-doped water-absorbing polymer particle according to any one of claims 1 to 4 or a composition according to any one of claims 5, 7 to 11 or a composite according to any one of claims 12 to 16 or at least two thereof.

18. Method of using a composition according to any one of claims 5, 7 to 11 for release of a wound-treating substance.

19. Method of using a water-absorbing polymer for release of a wound-treating substance from a polycondensate matrix.

20. Method of using an active substance-doped water-absorbing polymer particle according to any one of claims 1 to 4 or of a composition according to any one of claims 5, 7 to 11 or of a composite according to any one of claims 12 to 16 or of at least two thereof for producing a means for treating a wound of a higher vertebrate organism or for preventing the formation of a wound at or in a higher vertebrate organism.

21. Use of an active substance-doped water-absorbing polymer particle according to any one of claims 1 to 4 or of a composition according to any one of claims 5, 7 to 11 or of a composite according to any one of claims 12 to 16 or of at least two thereof in a hygiene article or a wound treatment means.